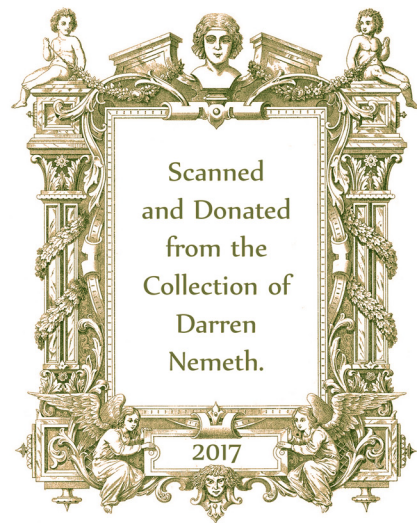


Sankyo

8-CM

MICRO ZOOM
INSTRUCTION BOOK

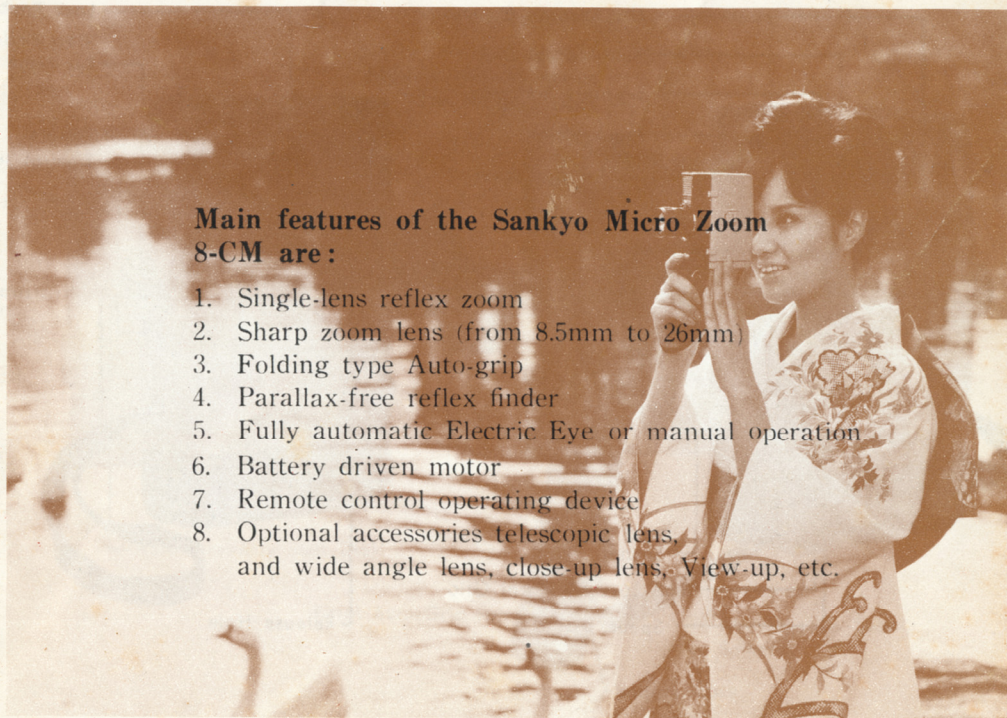


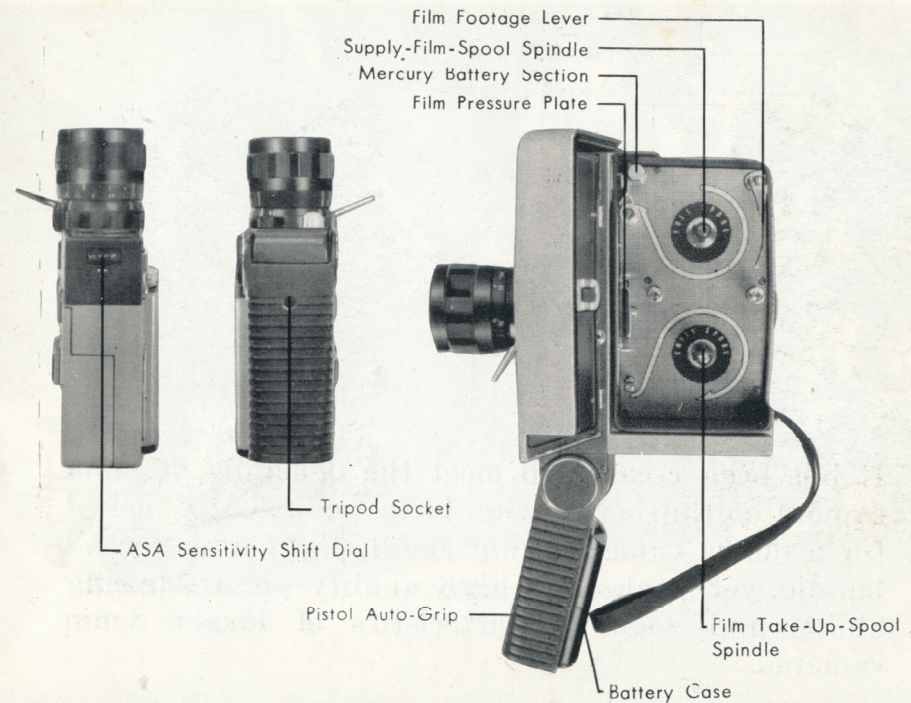
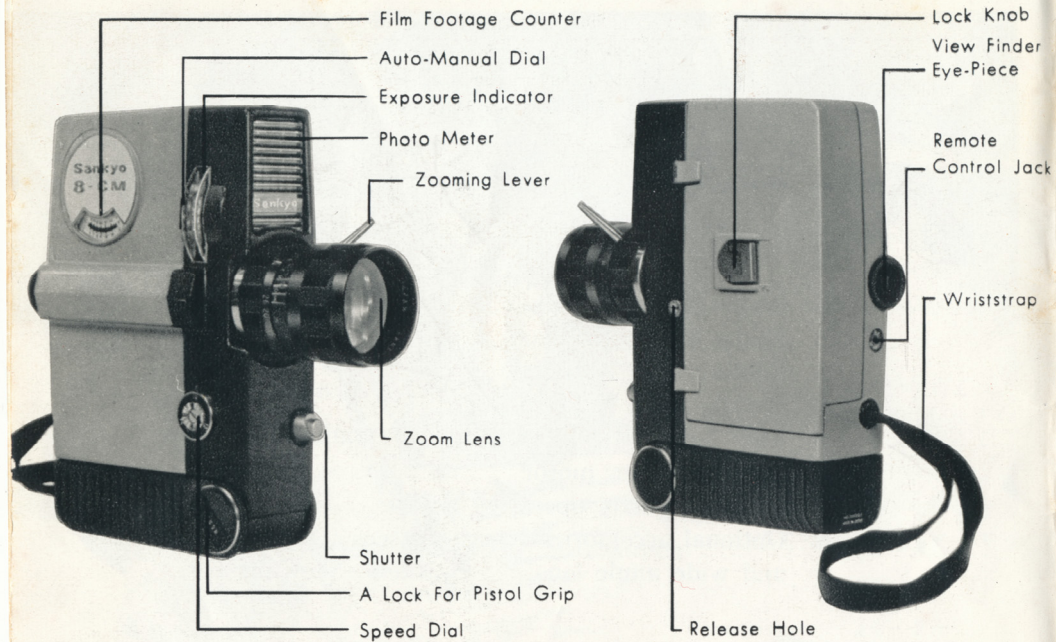
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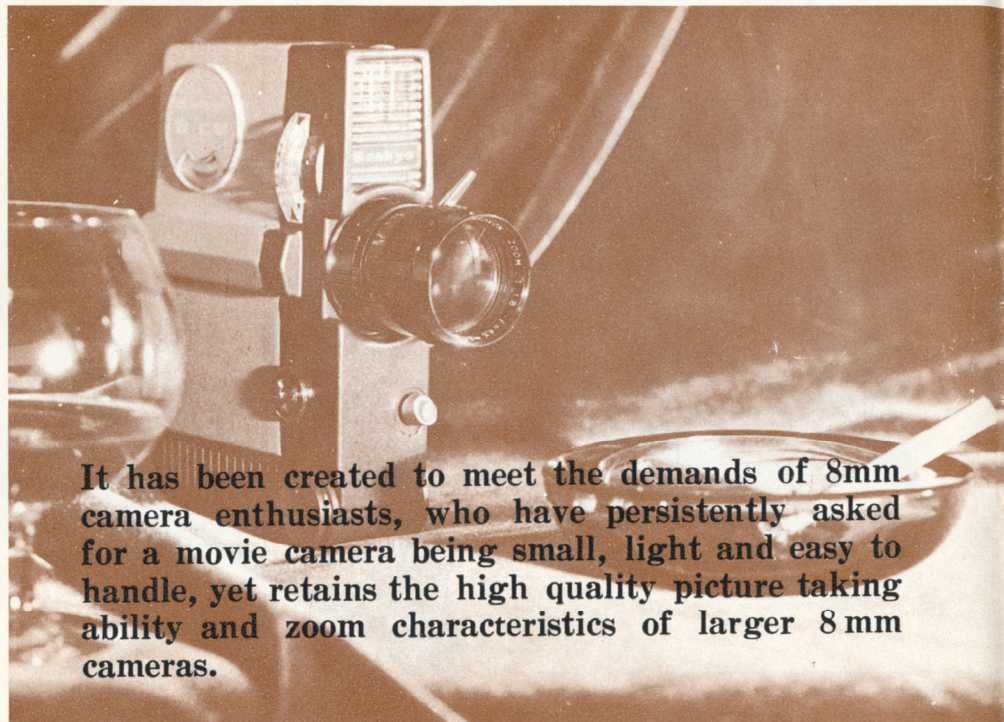
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Main features of the Sankyo Micro Zoom 8-CM are:

1. Single-lens reflex zoom
2. Sharp zoom lens (from 8.5mm to 26mm)
3. Folding type Auto-grip
4. Parallax-free reflex finder
5. Fully automatic Electric Eye or manual operation
6. Battery driven motor
7. Remote control operating device
8. Optional accessories telescopic lens, and wide angle lens, close-up lens, View-up, etc.







It has been created to meet the demands of 8mm camera enthusiasts, who have persistently asked for a movie camera being small, light and easy to handle, yet retains the high quality picture taking ability and zoom characteristics of larger 8mm cameras.



■ 8mm Film

The film is of double 8mm. That is, it is 16mm wide but only one side is used on the first run. Then the spools are reversed and the other half of the film is used. After development, the film is separated into 8mm wide films and they are linked together into one reel. Allowing for the exposed ends of film, the actual length of film is 32 ft. Projection time of one reel of 8mm film is approximately four minutes.

IMPORTANT: Do not operate shutter release when there is no film in camera. It may result in damage to shutter mechanism.

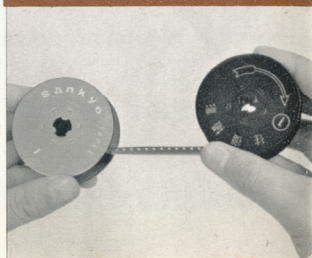
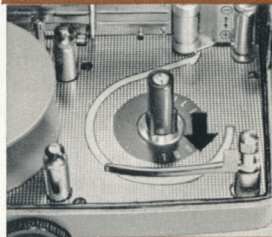


■ Loading

It is best to load and unload the film in the shade.

1. Lift the locking knob of the side cover and raise it by turning it counter-clockwise (approximately 90°).
2. Return the film counter lever as shown in the picture. (By doing this, the film counter indicator returns back to the position of "S").
3. Take the empty take-up spool out of the camera. Remove the new film from the box and can; remove the paper band (or tape) from film.

Hold the spool and carefully pull out about a foot of film leader. Be careful not to let the film unwind from spool while loading.

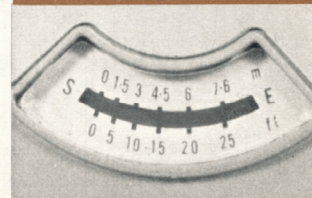
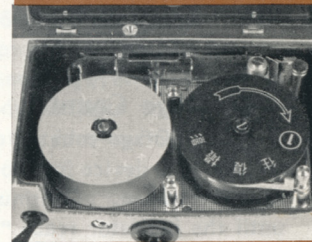
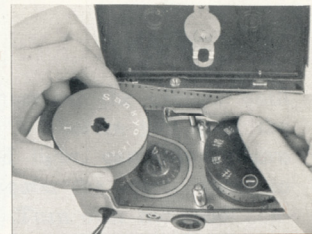


4. Place the full spool (with 4 notch hole facing upward) on the upper spindle; thread the length of leader over the upper guide roller, down between the aperture plate and pressure plate, then around the lower guide post. See diagram in camera.

5. Hold back the pressure plate with your forefinger and carefully push the film all the way down until it is properly seated and under lip of aperture plate.

6. Hold the empty take-up spool so that side I is facing upward. Thread the film end into the slot of the take-up spool and wind the film around the spool clockwise; then place the spool on the lower spindle. Take up the slack by turning the spool with your finger into the direction of arrow.

7. When closing the camera cover, make sure the film is running smoothly by pushing the shutter release button and running off a few inches of film. Shut the side cover of the camera and hold down shutter release until the film counter indicator moves from "S" to "O". You are now ready to take movies.



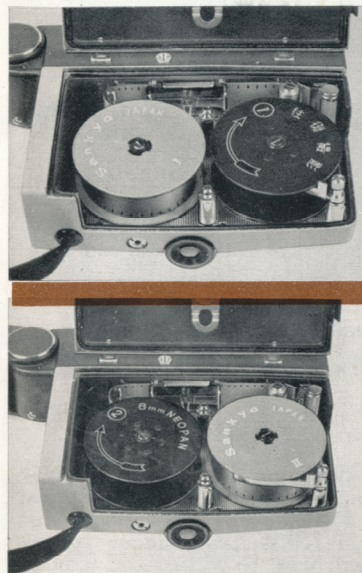
■ Footage Counter

The footage counter on the side of the camera is a device for showing the length of film consumed. Continue to take movies until the indicator reads "25"ft.



■ Using Second Half of Film

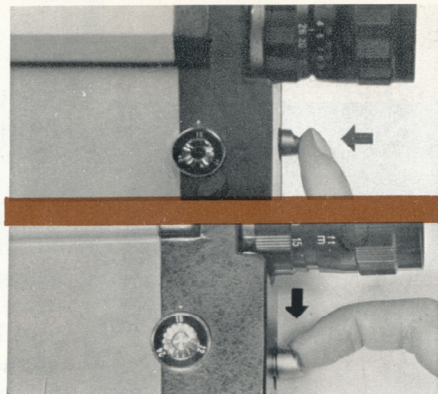
When the Footage Counter points to "25"ft, you have completely exposed that side of the film (the first 25 ft). Do not take any more movies.



However, you must run the camera until the indicator reads "E" before you open the cover. In subdued light, carefully remove both spools, and transfer the empty spool to the lower spindle. Turn over the spool containing the film, and reload the camera as before. (See page 6~7). Now, the Sankyo spool II is facing upward. The film counter returned to "S" when you opened the camera, so you are now ready to take movies again as soon as you run the film to "O".

■ Working the Shutter Button

The shutter release button of the 8-CM camera is designed as a two-step system. First, when the button is pressed, the electric exposure meter is set in motion and the iris adjusts itself to the proper aperture. Second, the shutter starts automatically with the turning of the motor when the button is pulled downward. With this two-stage device, the EE (Electric Eye exposure) using CdS is very stabilized. The button returns to its original position when you release your finger from it. (Please read carefully and follow the instructions on Running Lock in order to avoid misuse of the shutter button.)



■ Running lock

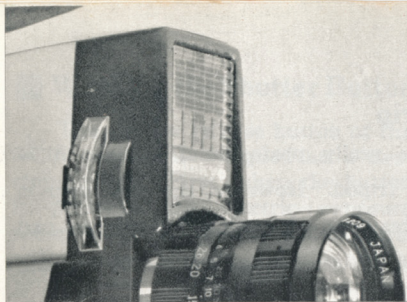
One of the features of this camera is that you can take pictures continuously even when you release your finger from the button. If you wish to take pictures continuously, press the shutter button in, downward to start the motor then push the outside of the button downward, and release your finger slowly from the shutter button. The shutter button will then be locked and stay in running position. When you want to stop, press the button lightly and let your finger off the button. The button then returns to the off position.



■ Auto-grip

To insure really professional movies, it is best to use a tripod. However, the Auto-grip is sufficiently steady to give excellent movies and one of the 8-CM's attractions is its mobility and ease of handling:

1. The folded grip, containing battery pulls up easily and locks in an upright position.
2. When you wish to fold back the Auto-grip, push in the locking button at the folding joint and push handle toward base of camera.
3. When you operate camera, hold the grip tightly as shown in picture.

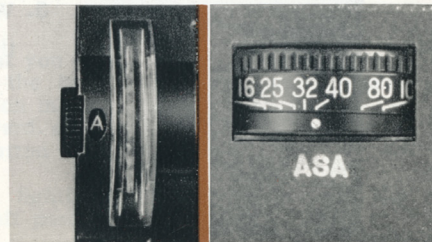


■ Fully Automatic High Sensitivity Exposure Meter

The CdS exposure meter of the Sankyo 8-CM is highly sensitive and works accurately under all lighting conditions. You do not have to worry about correct exposure. (Use manual control for special effects.)

1. Setting for automatic meter.
Turn the auto-manual switch dial until a white letter "A" appears. This setting is for automatic operation.

2. Setting of ASA.
Turn the ASA dial to the number of the film which you are using. The ASA works even if it is set at an intermediate position. For example, the intermediate position between 16 and 25 is approximately 20.

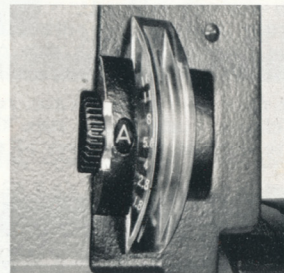


3. Exposure meter automatically coupled to :

Diaphragm opening f/1.8-16

Film Speed ASA 10-250 (Din 11-25)

Shutter Speed 12, 16, 24, fps.



■ Tests of Exposure Meter Operation

Push the shutter release button lightly and if the meter pointer in the diaphragm indicating window moves, it is operating satisfactorily. (The electric eye operates as long as the mercury battery in the upper part of the body is effective. It has no relation with the regular battery) ! This test should be made in a bright place as it may not work in a dark location.

■ Change of a Mercury Battery

The expected life span of a mercury battery contained in the body is approximately 2 years and the change should be made in the following manner:

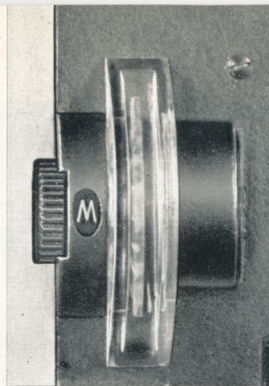
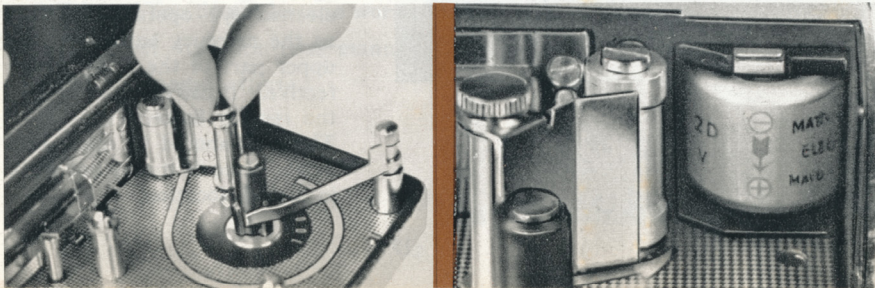
1. Removal

After opening the side cover of the camera, raise the knob on the head part of the upper pillar and turn it downward. The door of the mercury battery compartment can be opened. After opening the door, take off the spring holder for the mercury battery and turn it downward. The battery comes out automatically.

2. Insertion of a Mercury Battery

When inserting a new mercury battery, be sure the plus and minus signs are correct. (Please follow diagram on back side of the door.) The battery does not work if the position of plus and minus signs are wrong.

3. After inserting battery, shut the door in. In this case, raise the knob and turn it around as instructed in clause 1 and make sure that the needle on top of the knob is fitted into the hold at the bottom of the body.



■ Manual Exposure

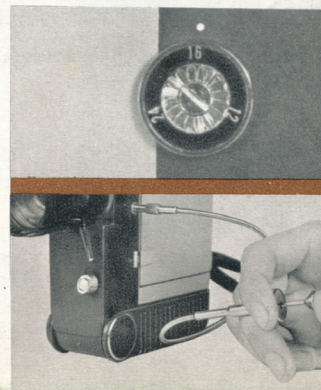
When you wish to photograph an object, using a different exposure from that indicated by the EE (electric eye) turn the auto-manual dial from A (Auto) upward and choose a light value between M (Manual) and C (Clamp).

Caution:

As manual exposure is an artificial adjustment of the correct exposure, the calculation of your exposure must take into account the sensitivity of the film you are using, the lighting condition and the subject to be photographed.

■ Shutter Speeds

The 8-CM offers the versatility of three shutter speeds12. 16 and 24 f.p.s. To change shutter speed, rotate dial until the speed desired is opposite white dot. For single frame shooting, use the release. 16 f.p.s. should be used for movie taking; 24 f.p.s. when taking movies from a moving vehicle, such as a car or a train; and 12 f.p.s. for "fast motion" shots.



■ Reflex Viewfinder

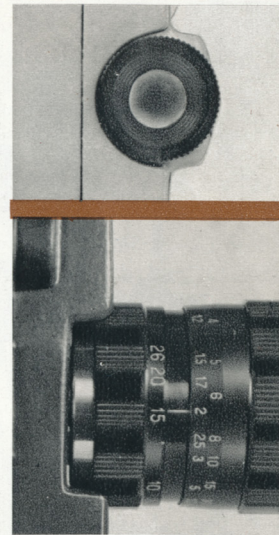
The 8-CM has a viewfinder system, eliminating parallax (no cut-off heads). The finder can be adjusted to your eye-sight by turning the serrated eyepiece ring located where the eye looks through the finder. Just turn the eye-piece until you can see the subject clearly. Once this adjustment is made for your eye-sight, it should not be changed.



■ Focusing

The white line on the right side of the lens barrel is the standard focus line. Set the distance between the camera and the object to be photographed at this line. (Both feet and meters are engraved on the front rotating lens. Tube-meters are marked in orange-feet in white).

The standard focal distance of an 8mm camera is 13mm and most pictures are taken in this vicinity. As indicated on the depth-of-field table on the last pages, the focal depth is very deep when the focal distance is less than 13mm. Therefore, you can easily take good pictures by just approximating the distance between you and the subject and setting this distance opposite the focus white line. However, it is advisable to focus as accurately as possible when you wish to take a close-up shot at a long focal distance (approximately 26mm).



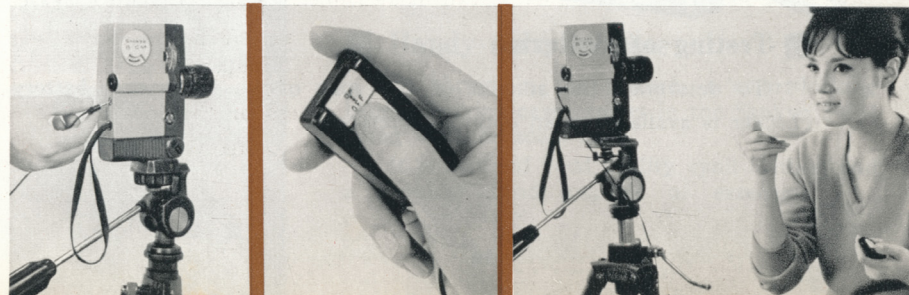


■ Zoom Lens

The Pronon Zoom Lens is a high-efficiency zoom lens, especially designed for use with the 8-CM camera. It has an aperture of $f/1.8$ and a zoom range from 8.5mm (wide angle) to 26mm (Telephoto). The movement of the Zoom lever varies the focal length of the lens from 8.5mm to 26 mm. With a continuous variation in focal length during the picture taking, the lens can make subjects appear to come nearer or gradually recede. If not overdone and skillfully handled, zooming can greatly add to the effectiveness of the movie. It is known as zooming effect.

■ Remote control Photography

1. Insert the plug of remote control into the jack at the rear of camera body.
2. Set the switch of the remote control to "off".
3. Set the shutter release button to continuous photography position (refer to page 10). There is no danger of the camera starting to run if you leave the switch in "off" position.
4. Now, the camera is ready for remote control photography. Set the focal distance between camera and object and set the switch of remote control to "on". You can then take pictures for any length of time you may wish.
5. When you wish to remove remote control, set the switch to "off". Turn the shutter release button to its original position and pull the plug out of the camera body.



■ How to insert batteries

The Sankyo Micro Zoom 8-CM uses four dry penlight batteries (AA type). First, pull up the grip. Remove battery case from inside of the grip by pressing on the bottom of the battery case and pulling it down. Open the lid of battery case by turning the screw on the bottom counter-clockwise. The position of the batteries must be followed as shown in chart. After fixing the batteries in place, re-insert case in grip by pressing on the knob and pushing upward. A new set of batteries will run 10 rolls of film before battery replacement is necessary. If you do not use the camera for a long time, it is advisable to take the batteries out of the grip.

■ Testing of Batteries

To determine the amount of life span of the batteries, a battery checker is available as an optional accessory.



■ Clamping of an Exposure Meter

It is not necessary to lock the exposure meter when camera is not in use. However, it is advisable, if camera is to be transported or on any movement which might cause shocks to the camera. To lock the camera, turn the automanual dial until the letter "c" appears in the window



■ Handy carrying case

As shown in the picture, a smart-looking handy carrying case can let in the Sankyo 8-CM fitted with the zoom lens.

It is made of good quality vinyl leather, and a shoulder band capable of extension.

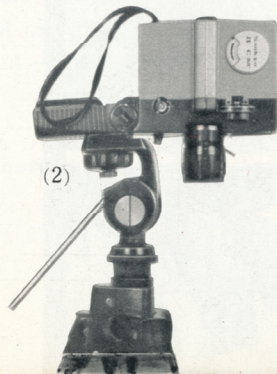
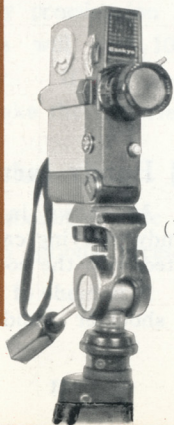
■ Wriststrap

Put your wrist through the wriststrap and hold the grip firmly. This helps to stabilize the camera.



■ Tripod Socket

There is a tripod socket on the grip. Use a tripod whenever you wish to produce a really professional 8mm movie, as it gives the camera a stable platform. In most cases, a tripod is used as in picture (1). The method of photographing as shown in picture (2) should be employed when photographing up and down in a slanting direction or that of title-card from right overhead.



Specifications

Type :	Spool loading, double-Eight, 25-ft film
Operation :	Battery motor drive, 1.5V x 4 (UM-3 battery)
Shutter :	Push-button system (two-step system) Connected with Meter Switch (Remote control operation possible)
Filming speed :	1, 12, 16, 24 (One F.P.S. is by the use of cable release)
Lens :	F1.8 $f=8.5-26\text{mm}$ zoom lens Zooming ratio: 1:3 Afocal lens can be replaced
Finder :	Single-lens reflex finder using half-mirror prism Eyepiece can be adjusted (adjustments from +2 ~ -2 diopter are possible)
Grip :	Folding type Auto-grip (containing battery case)
Exposure Meter :	Exposure meter automatically coupled to film speed : ASA 10-250 (DIN 11-25) shutter speed : 12, 16, 24 F.P.S. and F stops : F1.8 - F16 whole area
Size :	100 x 152 x 35mm
Weight :	0.82kg (including zoom lens and batteries)

■ Many accessories making Sankyo Micro-zoom 8-CM camera more charming!

You actually have several cameras in one when you use the Sankyo accessories. Please enjoy the pleasure of movie-creation with this camera.



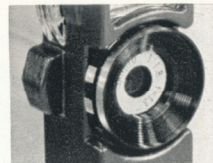
SANKYO BATTERY CHECKER

Sankyo battery checker lets you know the storage of electricity in battery only if it is set to battery case.



SANKYO LENS HOOD (For ZOOM LENS)

This hood can be fitted on to the front of zoom lens and serves for adjusting the tone of pictures shutting out harmful light as well as protecting the lens.



SANKYO STANDARD LENS HOOD (For 13mm)

In case of using Fixed Focus Lens 13mm after removing the zoom lens, this hood is necessary to be screwed on the lens for protecting the iris, as per the above photograph.



SANKYO TELE CONVERTER (Telescopic lens for replacement)

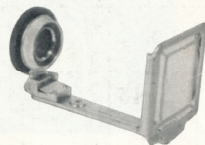
SANKYO WIDE CONVERTER (Wide angle lens for replacement)

We have prepared F1.8 6.5mm wide angle lens and F1.8 32mm telescopic lens to meet the ardent demands of veteran users wishing wider angle and more telescopic filming.



SANKYO CLOSE-UP LENS

You can enjoy a close-up filming by fixing this close-up lens with adaptor ring at the top of zoom lens.



SANKYO VIEW-UP

When you remove zoom lens and replace it with this equipment, you can enjoy title filming and recopying of slides.



SANKYO FADER

Fade-in and fade-out, a high-class filming technique, is possible by using this equipment.

Depth of field chart

(Meter)

	Distance Aperture	∞	10	5	3	2.5	2	1.7	1.5	1.2
mm f=8.5	1.8	2.01 ∞	1.67 ∞	1.43 ∞	1.20 ∞	1.11 ∞	1.00 ∞	0.92 11.12	0.86 5.94	0.75 2.98
	2.8	1.29 ∞	1.14 ∞	1.03 ∞	0.90 ∞	0.85 ∞	0.78 ∞	0.73 ∞	0.69 ∞	0.62 17.17
	4	0.90 ∞	0.83 ∞	0.76 ∞	0.69 ∞	0.66 ∞	0.62 ∞	0.59 ∞	0.56 ∞	0.52 ∞
	5.6	0.65 ∞	0.61 ∞	0.57 ∞	0.53 ∞	0.51 ∞	0.49 ∞	0.47 ∞	0.45 ∞	0.42 ∞
	8	0.45 ∞	0.43 ∞	0.41 ∞	0.39 ∞	0.38 ∞	0.37 ∞	0.36 ∞	0.35 ∞	0.33 ∞
	11	0.33 ∞	0.32 ∞	0.31 ∞	0.30 ∞	0.29 ∞	0.28 ∞	0.28 ∞	0.27 ∞	0.26 ∞
	16	0.23 ∞	0.22 ∞	0.22 ∞	0.21 ∞	0.21 ∞	0.20 ∞	0.20 ∞	0.20 ∞	0.19 ∞

Depth of field chart

(Meter)

f=26 ^{mm}	Distance Aperture	∞	10	5	3	2.5	2	1.7	1.5	1.2
	1.8	18.78 ∞	6.53 21.39	3.95 6.81	2.59 3.57	2.21 2.88	1.81 2.24	1.56 1.87	1.39 1.63	1.13 1.28
	2.8	12.07 ∞	5.47 58.28	3.54 8.54	2.40 3.99	2.07 3.15	1.72 2.40	1.49 1.98	1.33 1.71	1.09 1.33
	4	8.45 ∞	4.58 ∞	3.14 12.25	2.21 4.65	1.93 3.55	1.62 2.62	1.42 2.13	1.27 1.82	1.05 1.40
	5.6	6.04 ∞	3.76 ∞	2.73 29.14	2.00 5.12	1.77 4.27	1.50 2.99	1.33 2.37	1.20 2.00	1.00 1.50
	8	4.23 ∞	2.97 ∞	2.29 ∞	1.75 10.35	1.57 6.12	1.36 3.80	1.21 2.84	1.11 2.33	0.93 1.68
	11	3.07 ∞	2.35 ∞	1.90 ∞	1.52 ∞	1.38 13.41	1.21 5.73	1.09 3.81	1.01 2.93	0.86 1.97
	16	2.11 ∞	1.74 ∞	1.49 ∞	1.24 ∞	1.14 ∞	1.03 37.56	0.94 8.71	0.88 5.17	0.77 2.78

Depth of field chart

(Meter)

f=15 ^{mm}	Distance Aperture	∞	10	5	3	2.5	2	1.7	1.5	1.2
	1.8	6.25 ∞	3.85 ∞	2.78 25.00	2.03 5.77	1.79 4.17	1.52 2.94	1.34 2.34	1.21 1.97	1.01 1.49
	2.8	4.02 ∞	2.87 ∞	2.23 ∞	1.72 11.84	1.54 6.62	1.34 3.98	1.19 2.95	1.09 2.39	0.92 1.71
	4	2.81 ∞	2.20 ∞	1.80 ∞	1.45 ∞	1.32 22.50	1.17 6.92	1.06 4.30	0.98 3.21	0.84 2.09
	5.6	2.01 ∞	1.67 ∞	1.43 ∞	1.20 ∞	1.11 ∞	1.00 ∞	0.92 11.05	0.86 5.92	0.75 2.98
	8	1.41 ∞	1.23 ∞	1.10 ∞	0.96 ∞	0.90 ∞	0.83 ∞	0.77 ∞	0.73 ∞	0.65 8.18
	11	1.02 ∞	0.93 ∞	0.85 ∞	0.76 ∞	0.73 ∞	0.68 ∞	0.64 ∞	0.61 ∞	0.55 ∞
	16	0.70 ∞	0.66 ∞	0.62 ∞	0.57 ∞	0.55 ∞	0.52 ∞	0.50 ∞	0.48 ∞	0.44 ∞

Depth of field chart

(Note)

- ① The figures shown in the table are distances in meters from the object of filming to the film.
- ② The upper and lower figures in the same columns in the above table are near and distant points respectively.
- ③ Images become unstabilized when the figures other than those shown in the above table are used. However, the images do not become obscure suddenly.
- ④ As shown in the depth of field chart, the zoom lens comes to being focused universally between 8.5 mm and 15 mm, you do not have to be nervous about making adjustments of distances.
- ⑤ In the case of 8-CM, you can obtain exact focus if you set it to five meters.

SANKYO SEIKI M.F.G CO., LTD.
JAPAN



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